

We claim:

- 1) A binder composition consisting essentially of:
 - a) from 80 to 98 weight % of a copolymer binder comprising as polymerized units:
 - i) 98.5 to 70 weight % of at least one first monomer selected from the group consisting of C₂-C₈ esters of methacrylic acid and acrylic acid;
 - ii) 1 to 30 weight % of at least one second monomer selected from the group consisting of styrene, acrylonitrile, and methyl methacrylate;
 - iii) 0.5 to 5 weight % of at least one third monomer selected from the group consisting of acrylic acid, methacrylic acid, acrylamide, methacrylamide, and 2-acrylamido-2-methylpropanesulfonic acid; wherein said copolymer binder is an emulsion polymer and has a glass transition temperature in the range of -35°C to 0°C; and
 - b) from 20 to 2 weight % of a hydrophobically modified alkali soluble emulsion.
- 2) The composition of claim 1 further including sufficient surfactant to ensure stability of said binder composition.
- 3) The composition of claim 1 wherein said at least one first monomer is selected from the group consisting of butyl acrylate, ethyl acrylate, and 2-ethyl hexyl acrylate.
- 4) The composition of claim 1 wherein the average particle diameter of said copolymer binder is in the range of 0.10 μm to 0.50 μm.
- 5) A coating process comprising:
 - a) preparing a paper coating composition by admixing ingredients comprising 100 parts by dry weight pigment slurry; from 1.6 to 9.8 parts by dry weight copolymer binder comprising as polymerized units 98.5 to 70% of at least one first monomer selected from the group consisting of C₂-C₈ esters of methacrylic acid and acrylic acid, 1 to 30% of at least one second monomer selected from the group consisting of styrene, acrylonitrile, and methyl methacrylate, 0.5 to 5% of at least one third monomer selected from the group consisting of acrylic acid, methacrylic acid, acrylamide, methacrylamide, and 2-acrylamido-2-

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methylpropanesulfonic acid; wherein said copolymer binder is an emulsion polymer and has a glass transition temperature in the range of -35°C to 0°C; and from 0.04 to 2.0 parts by dry weight hydrophobically modified alkali soluble emulsion;

wherein said paper coating composition has a pH in the range of 6 to 10; and wherein said paper coating composition has a solids level in the range of 30 to 75 weight %;

b) applying said paper coating composition onto a paper substrate; and

c) drying said paper substrate coated with said paper coating composition.

6) The coating process of claim 5 wherein said paper coating composition has a solids level in the range of 50 to 70 weight %.

7) The coating process of claim 5 wherein the coating speed is greater than 600 meters per minute.

8) The coating process of claim 5 wherein the dry weight of said paper coating composition on said paper substrate is in the range of 3 to 12 grams per square meter.

9) A paper substrate coated with a paper coating composition comprising:

a) 100 parts by weight pigment;

b) from 1.6 to 9.8 parts by weight copolymer binder comprising as polymerized units:

i) 98.5 to 70% first monomer selected from the group consisting of C₂-C₈ esters of (meth)acrylic acid;

ii) 1 to 30% second monomer selected from the group consisting of styrene, acrylonitrile, and methyl methacrylate;

iii) 0.1 to 5% of at least one third monomer selected from the group consisting of acrylic acid, methacrylic acid, acrylamide,

methacrylamide, and 2-acrylamido-2-methylpropanesulfonic acid;

wherein said copolymer binder is an emulsion polymer and has a glass transition temperature in the range of -35°C to 0°C; and

c) from 0.04 to 2.0 parts by weight hydrophobically modified alkali swellable emulsion polymer.

10) The paper substrate of claim 10 wherein the coat weight of said paper coating composition is in the range of 3 to 12 grams per square meter.

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